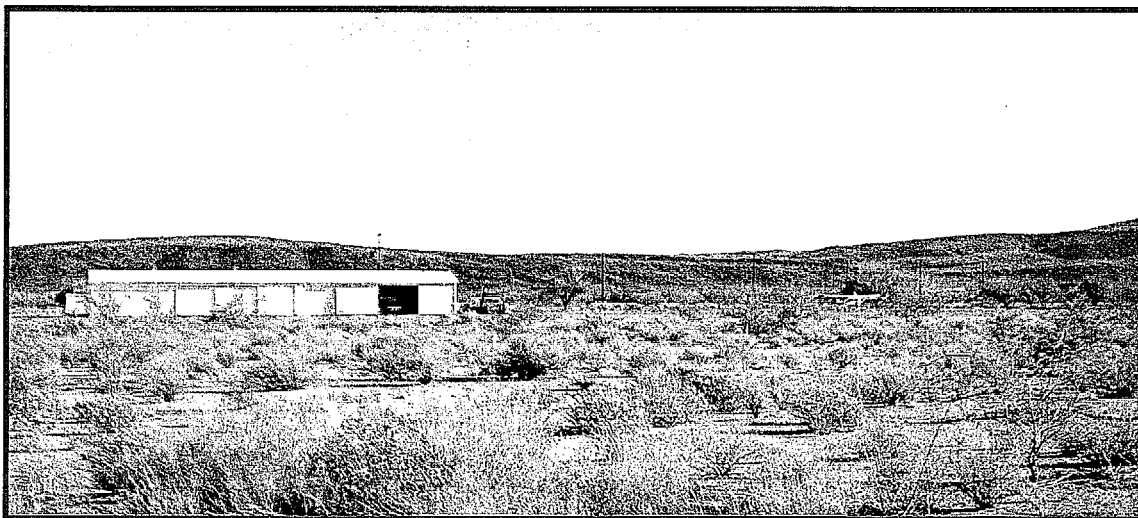




## Chapter Two

# AVIATION DEMAND FORECASTS

# AVIATION DEMAND FORECASTS



Facility planning must begin with a definition of the demand that may reasonably be expected to occur at the facility over a specific period. In airport master planning, this involves forecasts of aviation activity indicators over a twenty-year planning period. In this master plan, forecasts of based aircraft, based aircraft fleet mix, and annual aircraft operations will serve as the basis for facility planning.

It is virtually impossible to predict with certainty year-to-year fluctuations of activity when looking twenty years into the future. Because aviation activity can be affected by many influences at the local, regional, and national level, it is important to remember that forecasts are to serve only as guidelines and planning must remain flexible enough to respond to unforeseen facility needs.

The following forecast analysis examines recent developments, historical information, and current aviation trends to provide an updated set of based aircraft and operational projections. The intent is to permit Pima County to make the planning adjustments necessary to ensure that the facility meets projected demands in an efficient and cost-effective manner.

## ***NATIONAL AVIATION TRENDS***

Each year, the Federal Aviation Administration (FAA) publishes its national aviation forecast. Included in this publication are forecasts for air carriers, regional/commuters, general aviation, military, and FAA workloads. The forecasts are prepared to meet budget and planning

needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and the general public. When this chapter was prepared, the current edition was *FAA Aviation Forecasts - Fiscal Years 1998-2009*. The forecasts use the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analysis are applied to the outlook for aviation growth in international markets.

For the U.S. aviation industry, the outlook for the next twelve years is for moderate economic growth. Fuel prices during this period are expected to rise at nearly the same rate as inflation, increasing at an average annual rate of 2.2 percent. Based on these assumptions, aviation activity by fiscal year 2009 is forecast to increase by 18.0 percent at combined FAA and contract towered airports and 23.1 percent at air route traffic control centers. The general aviation active fleet is projected to increase by almost 12.0 percent while general aviation hours flown are forecast to increase by 16.6 percent.

## GENERAL AVIATION

General aviation describes a diverse range of aviation activities that includes all segments of the aviation industry except commercial air carriers and military. General aviation (GA) is the largest component of the national aviation system and includes the production and sale of aircraft, avionics and other equipment, along with the provision of support services such as flight schools, fixed base operators, finance and insurance. The GA industry is an important contributor to the nation's economy. It provides on-the-spot efficient and direct

aviation services that commercial aviation either cannot or will not provide. After nearly a decade of decline, many statistical measures for general aviation have been generally positive over the past three years.

In 1997, general aviation completed its third year of operations following the passage of the General Aviation Revitalization Act of 1994 (federal legislation which limits the liability on general aviation aircraft to 18 years from the date of manufacture). The high cost of product liability insurance was a major factor in the decisions by many American aircraft manufacturers to slow or cease the production of general aviation aircraft. Passage of this legislation sparked a renewed interest in the manufacturing of general aviation aircraft due to the reduction in product liability. So, while 1995 represented the beginning of renewed optimism for the GA industry, 1996 saw the industry convert this optimism into constructive actions that stimulated development and production of new general aviation products and services. By 1997, the industry began seeing the results of the renewed optimism and positive actions. While the results of the industry's performance in 1996 and 1997 are mixed, they are, overall, positive. The general aviation industry appears to have laid a solid foundation for growth over the next 12 years and into the future.

By nearly any measure, 1997 was a very good year for general aviation. GA aircraft unit shipments were heading toward a third consecutive year of increase. Through the first nine months of 1997, manufacturers shipped 954 aircraft, compared with 1,130 for all of 1996, and 1,077 for all of 1995. The number of units shipped in 1997 reflects an increase of 30.7 percent over the same 1996 period. Of more importance, however, was that the

renewed interest in piston-engine aircraft over the past three years (shipments up 15.4 and 4.2 percent, respectively for 1995 and 1996), continued to gain strength in 1997. Piston aircraft shipments for the first nine months of 1997 totaled 561, increasing 46.9 percent over the same period in 1996. Additionally, 236 turbojets (up 46.9 percent) and 157 turboprops (down 20.3 percent) were shipped in this period. Amateur-built aircraft continues to exhibit steady growth, just as it has over the past 25 years.

Billings for GA aircraft in 1996 totaled \$3.1 billion. During the first nine months of 1997, billings have exceeded the entire 1996 figure, totaling nearly \$3.2 billion. This large increase in billings relative to shipments reflects, to a large extent, increased shipments of the generally higher priced turbojet aircraft.

Despite a small decline in the overall number of active pilots, the number of active student pilots increased from 94,947 for 1996 to 96,101 in 1997. This 1.2 percent increase marked the second consecutive yearly increase following steady declines in student pilot numbers since 1990. These student pilots are the future of general aviation and are one of the key factors impacting the future direction of the general aviation industry. This increase combined with the increases in piston-powered aircraft shipments and aircraft production are a signal that many of the industry initiated programs to revitalize general aviation, such as "GA Team 2000", have begun to have an effect.

The most notable trend in general aviation is the continued strong use of general aviation aircraft for business and corporate uses. In 1996 (the latest year of recorded data), the number of hours flown by the combined use categories of business and corporate flying represented 22.5 percent of total general

aviation activity down from 23.6 percent of total general aviation activity in 1995. The declines registered in the above categories reflect, to some extent, hours previously reported as business and corporate, now being reported as "public use", which is a new category added for 1996. Overall since 1991, the number of hours flown by the combined use categories of business and corporate flying represented 22.9 percent of total general aviation activity.

**Exhibit 2A** depicts the FAA forecast for active general aviation aircraft in the United States. The FAA forecasts general aviation active aircraft to increase at an average annual rate of 1.0 percent over the 13-year forecast period, increasing from 187,312 in 1996 to 212,960 in 2009. Over the forecast period, the active fleet is expected to increase by almost 2,000 annually considering approximately 2,000 annual retirements of older aircraft, and new aircraft production of nearly 4,000 annually. Turbine-powered aircraft are projected to grow faster than all other segments of the national fleet, growing 2.2 percent annually through the year 2009. This includes the number of turboprop aircraft increasing from 5,309 in 1996 to 6,482 in 2009 and the number of turbojet aircraft climbing from 4,287 in 1996 to 6,228 in 2009. Amateur-built aircraft are projected to increase at an average annual rate of 1.2 percent over the next twelve years, from 16,198 in 1996 to 18,622 in 2009.

## ***AIRPORT SERVICE AREA***

The first step in determining aviation demand for an airport is to define its generalized service area for the various segments of aviation the airport can accommodate. The airport service area is determined primarily by

evaluating the location of competing airports, their capabilities and services, and their relative attraction and convenience. With this information, a determination can be made as to how much aviation demand would likely be accommodated by a specific airport.

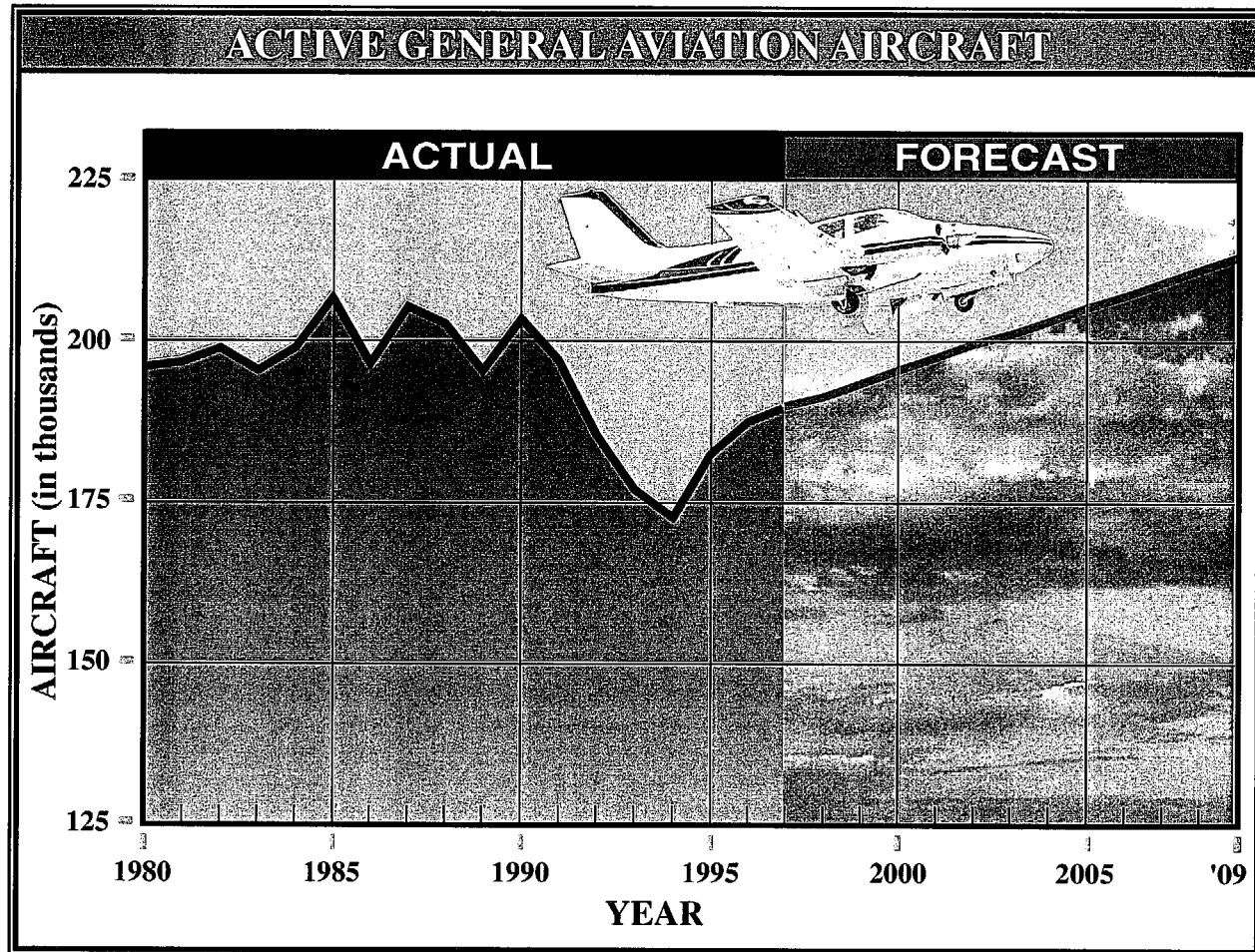
In determining the aviation demand for an airport it is necessary to identify the role of the airport. As noted in Chapter One, Ajo Municipal Airport is classified as a general aviation airport. Again, general aviation describes all components of the aviation field with the exception of the military and commercial air carriers. General Aviation includes all business flying (corporate and executive), all agricultural aviation, personal flying for sport or pleasure, as well as flight schools and flight clubs. Aircraft manufacturers, and aircraft maintenance facilities are also apart of general aviation.

Ajo Municipal Airport with its somewhat remote setting in mostly rural western Pima County has a potentially large service area. As described in the previous chapter, there are basically four public-use airports within 100 nautical miles. The closest of these offering competing levels of service is Gila Bend Municipal Airport, 35 nautical miles north, which limits the airport's service area to the north. The other three airports, Ryan Field, Tucson International Airport and Yuma International Airport-MCAS, however, are far beyond the 30 nautical mile range considered to impact an airport's general service area. A fifth airport, Sells Airport, located more than 50 nautical miles east-southeast on the Tohono O'odham (Papago) Indian Reservation, is used primarily by U.S. Government agencies and should have little affect on Ajo Municipal Airport's general service area.

Continued moderate economic and population growth projections for Ajo, much of it based on the anticipated reopening of the Phelps Dodge mine located there, should increase user demand at Ajo Municipal Airport. Along with the potential for increased business and corporate flying, a growing population should also bring an increase in the number of personal or recreational general aviation aircraft owners and pilots. The forecast analysis conducted in the following sections take into consideration the expected local and regional growth as well as the nearby airports that may influence the Ajo Municipal Airport service area.

## ***POPULATION PROJECTIONS***

Population growth provides an indication of the potential for sustaining growth in aviation activity over the planning period. A summary of historical and forecast population for Ajo and Pima County is shown in **Table 2A**. Between 1980 and 1996, Ajo's population decreased by nearly 1,800, a negative average annual growth rate of 2.6 percent. This decrease in population is attributed mainly to the 1984 closing of the Phelps Dodge New Cornelia Mine in Ajo. However, since 1990 the growth rate has recovered, posting a 2.7 annual growth rate through 1996. The principal reason for this recovery is the influx of retirees to the area. For the same period, Pima County's population has increased by approximately 250,000, also growing annually at 2.7 percent. Ajo's estimated population of 5,262 for the year 2025, shows an average annual growth rate of 1.4. The County's projected population by 2025 is 1,291,000 which translates to an average annual growth rate of 1.8 percent.



U.S. ACTIVE GENERAL AVIATION AIRCRAFT (in thousands)									
As of January 1	FIXED WING								
	PISTON		TURBINE		ROTORCRAFT				
	Single Engine	Multi- Engine	Turboprop	Turbojet	Piston	Turbine			
1997	136.7	15.8	5.3	4.4	2.4	4.0	16.4	4.2	189.3
2000	141.2	16.0	5.5	4.9	2.3	4.2	17.1	4.3	195.6
2003	145.3	16.2	5.8	5.4	2.2	4.4	17.7	4.4	201.4
2006	149.5	16.5	6.1	5.8	2.2	4.5	18.1	4.5	207.2
2009	153.7	16.6	6.5	6.2	2.1	4.6	18.6	4.6	213.0

Source: FAA Aviation Forecasts, Fiscal Years 1998-2009.

Notes: Detail may not add to total because of independent rounding. An active aircraft must have a current registration and it must have been flown at least one hour during the previous calendar year.

**TABLE 2A**  
**Historical and Forecast Population**

Year	Ajo	Pima County
<i>Historical</i>		
1980	5,189	531,443
1990	2,919	666,880
1996	3,417	780,750
<i>Forecast</i>		
2005	4,131	943,800
2015	4,899	1,119,350
2025	5,652	1,291,000
<i>Source: Arizona Department of Economic Security</i>		

## ***ECONOMIC OUTLOOK***

As mentioned in Chapter One, Ajo's present economy is centered around the tourist, service, and commercial sectors. Its 5.1 percent unemployment rate, though higher than that of the State and County, is in line with that of the nation as a whole. Again, the reopening of the Phelps Dodge mining operation in Ajo should enhance the town's economic picture which could also serve to increase aviation activity at Ajo Municipal Airport. Other economic data, both historic and forecast, for Ajo and the surrounding area is limited.

According to the Arizona Department of Commerce, statewide unemployment continues at or below 4 percent, while personal income for the State in 1996 rose 5.1 percent over 1995, compared to 4.6 percent nationally. Arizona ranked third nationally in job growth for right-to-work states for 1996. Meanwhile, Pima County's unemployment has remained below 5 percent since 1993, and personal income rose 4.48 percent annually

from 1985 to 1995. The overall economic outlook for Arizona and Pima County is for continued moderate growth for the foreseeable future.

## ***GENERAL AVIATION FORECASTS***

To determine the types and sizes of facilities that should be planned to accommodate general aviation activity, certain elements of this activity must be forecast. Indicators of general aviation demand include: based aircraft, the based aircraft fleet mix, annual operations, and peak activity. The remainder of this chapter will examine historical trends with regard to these areas of general aviation and project future demand for these segments of general aviation activity at the airport.

## ***BASED AIRCRAFT***

The number of based aircraft is the most basic indicator of general aviation demand

at an airport. By first developing a forecast of based aircraft, the growth of aviation activities at the airport can be projected.

In the preparation of based aircraft forecasts for Ajo Municipal Airport, historical data relating to based aircraft at the Airport was reviewed. ADOT's Aeronautics Division and the FAA maintain historical records concerning based aircraft at Arizona's public-use airports. In addition, the Pima Association of Governments (PAG) also compiles based aircraft records regarding the County's public airports. ADOT's based aircraft totals are obtained from aircraft registrations, while based aircraft totals for the FAA are derived from an annual inspection of the airport. PAG on the other hand uses the FAA annual inspection reports (Form 5010) as well as airport records and interviews with airport tenants and staff. Current airport records maintained by the Pima County Department of Transportation (PDOT), the owner/operator of the airport, show 4 single-engine piston aircraft based at Ajo Municipal Airport.

For purposes of determining future on-airport facility needs and deriving on-airport based aircraft trends, this master plan will utilize historical based aircraft totals provided by PAG, the FAA, and PDOT, as these more closely approximate actual historical based aircraft utilizing on-airport facilities. **Table 2B** summarizes historical based aircraft at Ajo Municipal Airport and historical registered in Pima County. This table reveals rather steady based aircraft numbers for 1984 through 1996, showing 6 based aircraft through the late 1980's, then 8 based aircraft

from 1990 till 1996 before declining to 4 based aircraft for 1997. Registered aircraft in Pima County grew annually at 2.0 percent from 1984 to 1997, while Ajo Municipal Airport's based aircraft decreased 3.1 percent (two aircraft) for the same period. Using estimated data for the year 1997 shows that based aircraft at Ajo Municipal Airport comprises 0.42 percent of the total number of Pima County Registered Aircraft. Future based aircraft demand at Ajo Municipal Airport has been analyzed by examining the airport's share of regional and national aviation markets. First, the airport's share of Pima County registered aircraft has been examined. Again, data in **Table 2B**, shows the percent of registered aircraft based at Ajo Municipal Airport from 1990 to 1996 to be stable, before declining in 1997.

The 1995 PAG RASP projected Pima County registered aircraft to grow to 1,360 by the year 2020, which would equate to a 1.5 percent annual growth rate from the 1997 figure of 958. Assuming that the airport's share of Pima County registered aircraft remained static at the 1997 level of 0.42 percent, Ajo Municipal Airport would base 6 aircraft by the end of the planning period. However, if based upon forecast local and regional population and economic growth, it is more likely that the airport's share of Pima County registered aircraft will increase throughout the planning period. An increasing market share of Pima County registered aircraft, in line with the expected growth in the area, would yield 14 based aircraft at Ajo Municipal Airport by the year 2020. A market share analysis of national aircraft totals has also been conducted and is



**TABLE 2B**  
**Historical and Forecast Based Aircraft and Pima County Registered Aircraft**

Year	Pima County Registered Aircraft	Ajo Municipal Airport Based Aircraft	Percent of Pima County Registered Aircraft Based At Ajo Municipal Airport
<b>HISTORICAL</b>			
1984	739 <sup>1</sup>	6 <sup>1</sup>	0.81
1985	727 <sup>1</sup>	6 <sup>1</sup>	0.83
1986	749 <sup>1</sup>	6 <sup>1</sup>	0.80
1987	793 <sup>1</sup>	6 <sup>1</sup>	0.76
1988	836 <sup>1</sup>	6 <sup>1</sup>	0.72
1989	848 <sup>1</sup>	6 <sup>1</sup>	0.71
1990	876 <sup>1</sup>	8 <sup>1</sup>	0.91
1991	871 <sup>1</sup>	8 <sup>1</sup>	0.92
1992	888 <sup>1</sup>	8 <sup>1</sup>	0.90
1993	900 <sup>1</sup>	8 <sup>1</sup>	0.89
1994	915 <sup>3</sup>	8 <sup>3</sup>	0.87
1995	930 <sup>3</sup>	8 <sup>3</sup>	0.86
1996	944 <sup>3</sup>	8 <sup>3</sup>	0.85
1997	958 <sup>3</sup>	4 <sup>2</sup>	0.42
<b>FORECASTS</b>			
<b>Constant Market Share</b>			
2000	1013 <sup>1</sup>	4	0.42
2005	1090 <sup>1</sup>	5	0.42
2010	1177 <sup>3</sup>	5	0.42
2015	1264 <sup>3</sup>	5	0.42
2020	1360 <sup>1</sup>	6	0.42
<b>Increasing Market Share</b>			
2000	1013 <sup>1</sup>	6	0.60
2005	1090 <sup>1</sup>	8	0.70
2010	1177 <sup>3</sup>	9	0.80
2015	1264 <sup>3</sup>	11	0.90
2020	1360 <sup>1</sup>	14	1.00
Sources:			
<sup>1</sup> Pima Association of Governments, Regional Aviation System Plan, Summary Report, February 1995			
<sup>2</sup> Ajo Municipal Airport Records, Pima County Department of Transportation, December 1997			
<sup>3</sup> Estimated by Coffman Associates.			

summarized in **Table 2C**. As indicated by the table, Ajo Municipal Airport's based aircraft market share for U.S. active aircraft remained fairly constant from 1984 through 1997, before falling in 1997. Two market share forecasts are presented in **Table 2C**. First, a constant, or static market share of based aircraft was applied to U.S. active aircraft forecasts. Maintaining a constant market share of U.S. active aircraft, Ajo Municipal Airport

can expect 5 based aircraft by 2020. Again, based upon the growth potential of the local and regional area, it is more likely that the market share of aircraft based at the airport will increase. According to the table, an increasing market share of U.S. active aircraft (0.008 percent) yields 19 aircraft for the year 2020. The 1995 *PAG RASP*, depicted in **Table 2D** provides a comparative forecast.

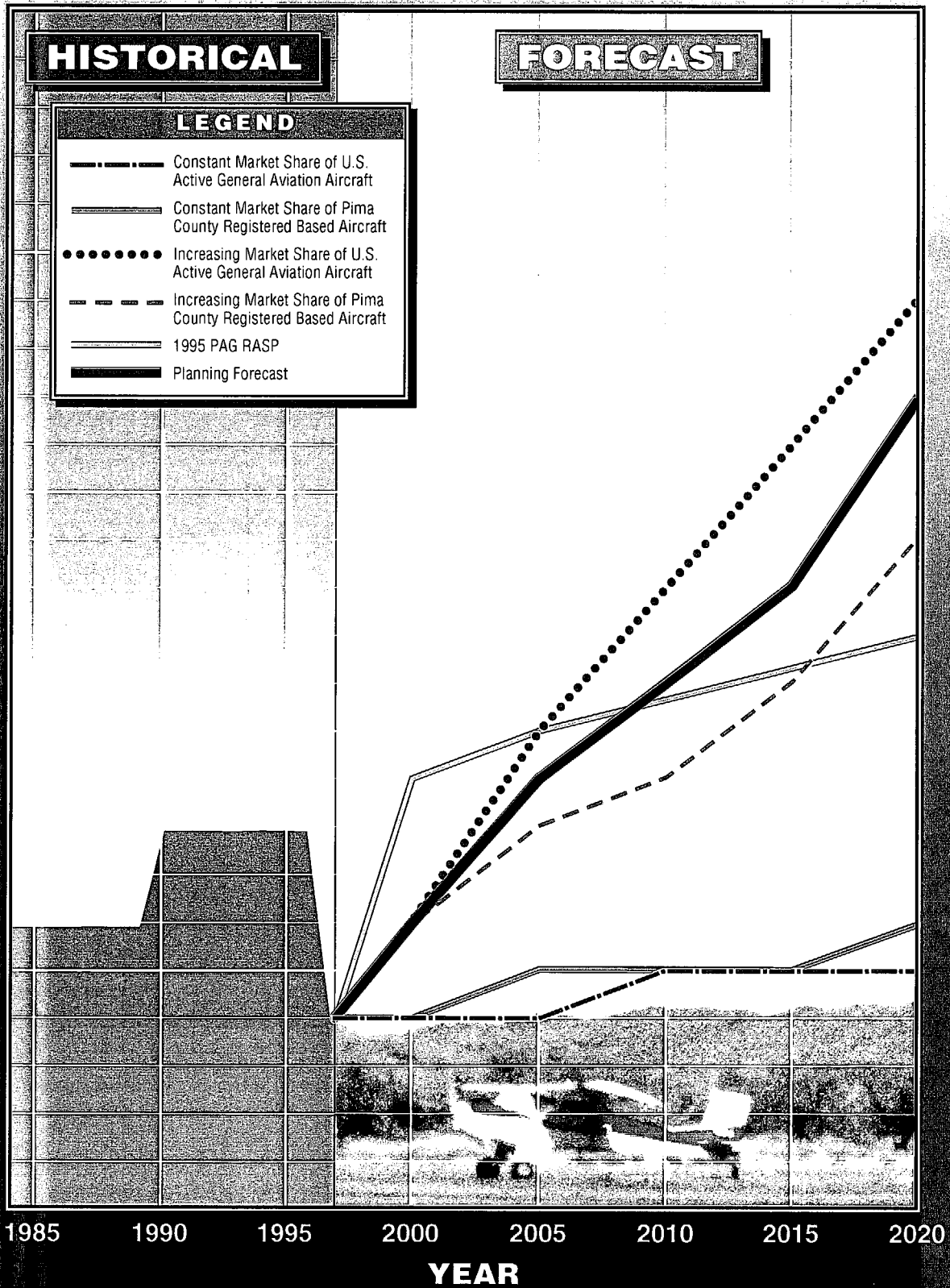
**TABLE 2C**  
**Regional and National Active Aircraft Market Share Analysis**

Year	Ajo Municipal Airport Based Aircraft	U. S. Active Aircraft	% of U. S. Active
1984	6	199,000	0.003
1985	6	203,000	0.003
1986	6	196,500	0.003
1987	6	205,300	0.003
1988	6	202,700	0.003
1989	6	196,200	0.003
1990	8	205,000	0.004
1991	8	198,000	0.004
1992	8	185,650	0.004
1993	8	177,210	0.005
1994	8	172,935	0.005
1995	8	182,605	0.005
1996	8	187,312	0.004
1997	4	189,328	0.002
<b>FORECASTS</b>			
Year	Based Aircraft	U.S. Active Aircraft	% of U.S. Active
<b>Constant Share</b>			
2000	4	195,635	0.002
2005	4	205,274	0.002
2010	5	215,090	0.002
2015	5	226,062	0.002
2020	5	237,593	0.002
<b>Increasing Share</b>			
2000	6	195,635	0.003
2005	10	205,274	0.005
2010	13	215,090	0.006
2015	16	226,062	0.007
2020	19	237,593	0.008
Source for Historical and Forecast U.S. Active Aircraft - <i>FAA Aviation Forecasts - Fiscal Years 1998-2009</i>			

A summary of all forecasts for based aircraft at Ajo Municipal Airport and the selected planning forecast is presented in **Table 2D**, and on **Exhibit 2B**. The planning forecast is a median range projection which reflects the airport capturing a larger portion of regional and national aviation markets over the planning period. Continued local and regional economic and population growth supports the long-range potential for based aircraft growth at the airport. The planning forecast projects

based aircraft at Ajo Municipal Airport growing at an average annual rate of 3.4 percent. In all likelihood, actual activity will not follow any one of the projections exactly. It is more likely that based aircraft levels will fluctuate within the range of the projections depicted on **Exhibit 2B**. Thus, these lines serve more as a planning envelope. The planning envelope reflects a reasonable range for based aircraft at the airport. With this in mind, the time-based projections of

**BASED AIRCRAFT**



**Exhibit 2B  
BASED AIRCRAFT FORECASTS**

anticipated growth should serve only as a guide. At any given time over the planning period, the actual level of based aircraft could

fall within the envelope area defined by the lower range forecast numbers and the higher range forecast numbers.

**TABLE 2D**  
**Based Aircraft Forecast Summary**

	2000	2005	2010	2015	2020
<b>Constant Market Share of:</b>					
U.S. Active General Aviation Aircraft	4	4	5	5	5
Pima County Registered Based Aircraft	4	5	5	5	6
<b>Increasing Market Share of:</b>					
U.S. Active General Aviation Aircraft	6	10	13	16	19
Pima County Registered Based Aircraft	6	8	9	11	14
<b>Other Forecasts:</b>					
1995 PAG RASP	9	10	N/A	N/A	12
<b>Planning Forecast</b>	<b>6</b>	<b>9</b>	<b>11</b>	<b>13</b>	<b>17</b>

## FLEET MIX

Knowing the aircraft fleet mix expected to utilize the airport is necessary to properly plan the facilities that will best serve not only the level of activity but also the type of activities occurring at the airport. The 1997 total of 4 based aircraft was comprised of all single-engine piston aircraft. Although, as recently as 1995, the *Pima Association of Governments, Regional Aviation System Plan Update, Summary Report* showed 8 total based aircraft, which included 6 single-engine piston and 2 multi-engine aircraft at Ajo Municipal Airport.

The forecast mix of based aircraft was determined by examining existing and forecast U.S. general aviation fleet trends. The *FAA Aviation Forecasts Fiscal Years 1998-2009* was consulted for the U.S. general aviation fleet mix trends and considered in the fleet mix projections. The fleet composition of based aircraft at Ajo Municipal Airport is expected to remain mainly in single-engine piston aircraft, although there is expected to be an increasing percentage of multi-engine, turboprop, jet, and helicopters in the future mix, consistent with national trends. **Table 2E** summarizes the based aircraft fleet mix projections for the airport.

<b>TABLE 2E</b> <b>Projected Based Aircraft Fleet Mix</b>						
<b>Year</b>	<b>Total Based Aircraft</b>	<b>Single Engine</b>	<b>Multi Engine</b>	<b>Turbo Prop</b>	<b>Jet</b>	<b>Helicopter</b>
<i>Historical</i>						
1995	8	6	2	0	0	0
1997	4	4	0	0	0	0
<i>Forecast</i>						
2000	6	6	0	0	0	0
2005	9	7	1	1	0	0
2010	11	8	2	1	0	0
2015	13	9	2	2	0	0
2020	17	10	3	3	0	1

## ANNUAL OPERATIONS

There are two types of general aviation operations at an airport: local and itinerant. A local operation is a take-off or landing performed by an aircraft that operates within site of the airport, or which executes simulated approaches or touch-and-go operations at the airport. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport. Generally, local operations are characterized by training operations. Typically, itinerant operations increase with business and industry use since business aircraft are used primarily to carry people from one location to another. Due to

the absence of an airport traffic control tower at the airport, aircraft operations have not been regularly documented. Instead, only general estimates of historical and current activity is available. **Table 2F** summarizes historical operational estimates for the airport. Based upon operational estimates provided by the airport manager, total operations in 1997 have been estimated at 1,500. No military operations were carried out at the Airport for 1997. The operations data source for 1993 was the 1995 PAG RASP, while the 1990 operational data came from the *Aviation Needs Technical Report*, Arizona Department of Transportation (ADOT), 1997. The operations data source for 1993 was the

<b>TABLE 2F</b> <b>Historical Operations Estimates</b>			
<b>Year</b>	<b>Based Aircraft</b>	<b>Annual Operations</b>	<b>Operations Per Based Aircraft</b>
1990 <sup>1</sup>	8	4,824	603
1993 <sup>2</sup>	8	1,800	225
1997 <sup>3</sup>	4	1,500	375
Sources:			
<sup>1</sup> <i>Aviation Needs Technical Report</i> , ADOT, July 1990			
<sup>2</sup> <i>Pima Association of Governments, Regional Aviation System Plan, Summary Report</i> , February 1995			
<sup>3</sup> Ajo Municipal Airport, December 1997 (Estimates from Airport Manager)			

The operations data source for 1993 was the 1995 PAG RASP, while the 1990 operational data came from the *Aviation Needs Technical Report*, Arizona Department of Transportation (ADOT), July 1990. The projections of annual operations at Ajo Municipal Airport shown **Table 2G**, have been prepared by examining the number of operations per based aircraft summarized in the following table.

For forecasting purposes, two forecasts of operations per based aircraft have been developed. First, a constant, or static level of 375 operations per based aircraft was applied to forecast based aircraft. This results in an operational level of 6,375 in 2020. According to *FAA Aviation Forecasts Fiscal Years 1998-2009*, estimates of general aviation operations at non-towered airports are up 8.2 percent

since 1978. This supports the contention that much of general aviation activity has, because of increased commercial air carrier activity, been diverted to non-towered airports. This also supports results from the FAA's *General Aviation Activity Survey*, which reveals that personal flying, while down in 1997, has increased as a percentage of total general aviation activity, from 27.2 percent in 1985 to 34.1 percent in 1996. This growth in general aviation activity is expected to continue, and as such an increasing operation per based aircraft forecast has been developed to account for this predicted activity. This results in an operational level of 6,800 in 2020. Both of these operational totals are based on the planning forecast of 17 based aircraft at Ajo Municipal Airport.

**TABLE 2G**  
**Annual Operations Forecast Summary**

	2000	2005	2010	2015	2020
Constant Number of Operations per Based Aircraft	2,250	3,375	4,125	4,875	6,375
Increasing Number of Operations per Based Aircraft	2,280	3,465	4,290	5,135	6,800
FAA's Projected 1.5 Percent Annual Increase	1,569	1,690	1,821	1,962	2,114
1995 PAG RASP	2,037	2,196	N/A	N/A	2,616
1995 Arizona SANS	1,800	2,000	2,200	2,400	N/A
1987 Master Plan	N/A	5,000	N/A	N/A	N/A
<b>Planning Forecast</b>	<b>1,800</b>	<b>2,475</b>	<b>3,000</b>	<b>3,600</b>	<b>4,675</b>

The FAA's Projected 1.5 Percent Annual Increase (total operations) projects 2,114 operations by the year 2020. The 1995 SANS forecasts annual operations growing to 2,400 by the year 2015 for Ajo Municipal Airport. The 1995 PAG RASPS predicts 2,616 operations in 2020, while the 1987 *Ajo Municipal Airport, Airport Layout Plan Update* predicted 5,000 operations for 2005 which was the only year of operations forecasting in the report. These additional forecasts, based on different variables, are provided to further define the operational

"forecast envelope" of the current planning period.

**Exhibit 2C** presents the planning forecast and "forecast envelope". The additional activity resulting from growth both on and around the airport property will continue to drive the number of annual operations at Ajo Municipal Airport and likely contribute to an increase in the number of annual operations at the airport. The planning forecast accounts for this additional activity as well as additional activity resulting from increased numbers of

based aircraft and increased itinerant use of the airport. This forecast projects annual operations at Ajo Municipal Airport of 4,675 by the year 2020.

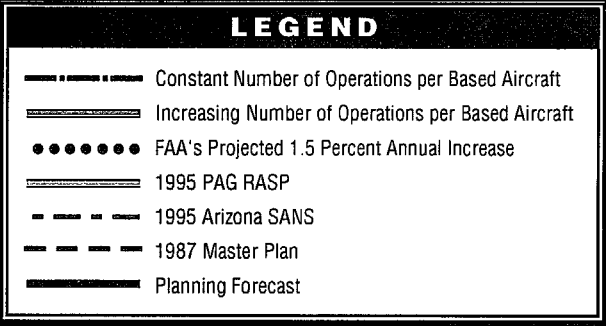
Without a tower or formal airport records, the percentage of local to itinerant operations can only be estimated. The last FAA 5010 inspection form, with a print date of June 27, 1996, shows local operations accounting for approximately 83 percent of the total operations at Ajo Municipal Airport. Given the airport's remote location, plus the neighboring restricted airspace and small number of based aircraft, it is assumed that local operations will continue to account for the majority of operations at Ajo Municipal Airport. However, itinerant operations are forecast to increase through the planning period (in number and as a percentage of total annual operations) due to the expected increased utilization of business and corporate as well as the influx of additional private aircraft owners to the region. By the end of the planning forecast, the composition of operations should be closer to 75 percent local and 25 percent itinerant operations. The projection of local and itinerant operations are summarized in the table at the end of this chapter.

## ***PEAKING CHARACTERISTICS***

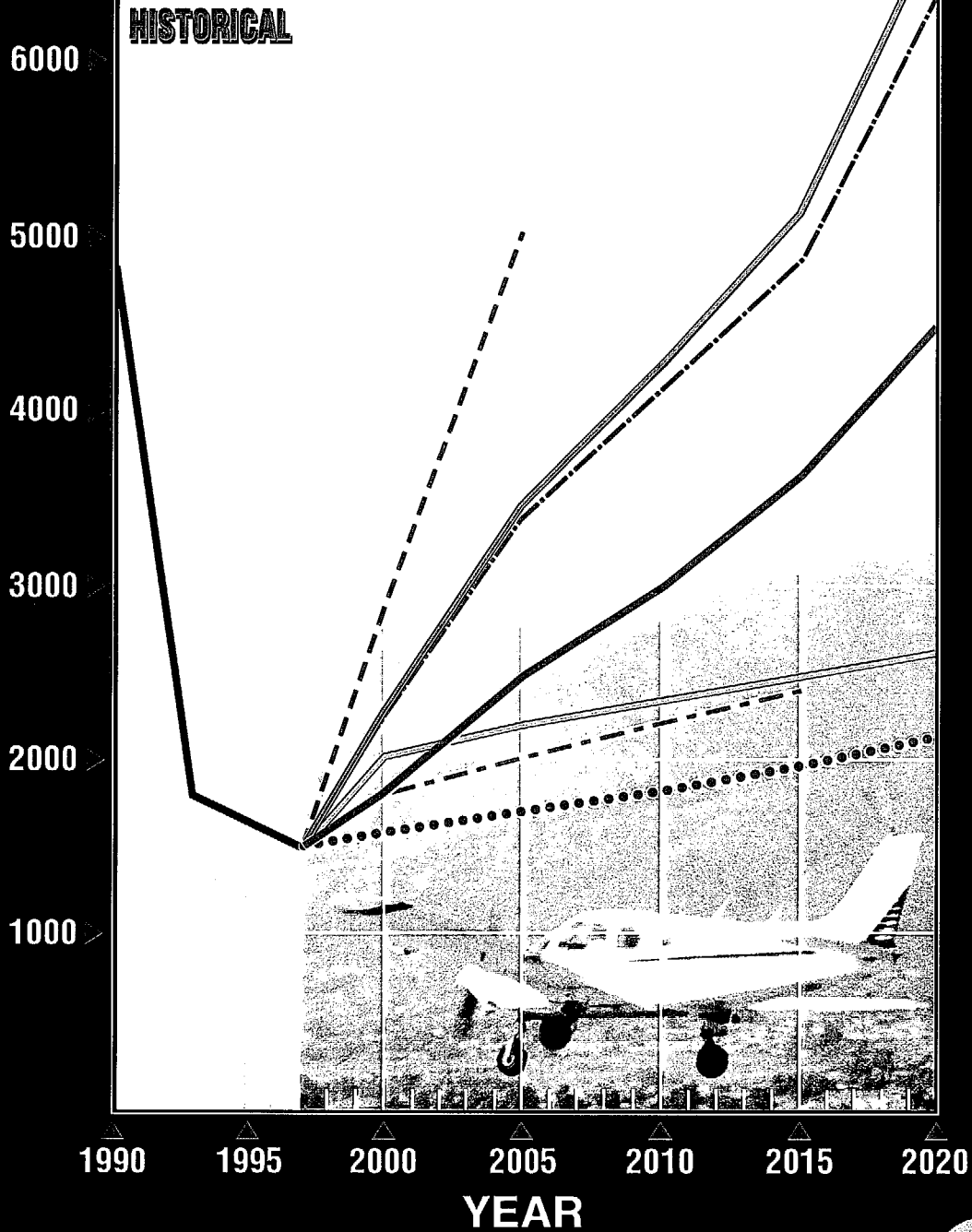
Many airport facility needs are related to the levels of activity during peak periods. The periods used in developing facility requirements for this study are as follows:

- ***Peak Month*** - The calendar month when peak aircraft operations occur.
- ***Design Day*** - The average day in the peak month. Normally this indicator is easily derived by dividing the peak month operations by the number of days in a month.
- ***Busy Day*** - The busy day of a typical week in the peak month. This descriptor is used primarily to determine apron space requirements.
- ***Design Hour*** - The peak hour within the design day. This descriptor is used primarily in airfield demand/capacity analysis, and in determining terminal building and access road requirements.

Adequate operational information is not available to directly determine peak aviation activity at the airport; therefore, peak period forecasts have been determined according to trends experienced at similar airports across the county. Typically, the peak month for activity at general aviation airports approximates 10-12 percent of the airport's annual operations. Peak month operations have been estimated as 11 percent of annual operations. The forecast of busy day operations at the airport was calculated as 1.25 times design day activity. Design hour operations were calculated as 13.0 percent of design day operations. **Table 2H** summarizes peak activity forecasts for the airport.



ANNUAL OPERATIONS





**TABLE 2H**  
**Peak Period Forecasts**

	2000	2005	2010	2015	2020
Annual Operations	1,800	2,475	3,000	3,600	4,675
Peak Month	198	272	330	396	514
Design Day	7	9	11	13	17
Busy Day	9	11	14	16	21
Design Hour	1	1	1	2	2

### **FORECAST SUMMARY**

This chapter has outlined the various aviation demand levels anticipated over the planning period. The next step in the master plan is to assess the capacity of existing facilities to accommodate forecast demand and determine which facilities will need to be improved to meet these demands. This will be examined

in the next chapter -- Chapter 3, Aviation Facility Requirements. **Table 2J** presents a summary of the aviation forecasts developed Ajo Municipal Airport. It should be noted that if the previously discussed Phelps Dodge mine reopening does not occur, it is quite likely that the forecasts presented in Table 2J may not be realized.

**TABLE 2J**  
**Aviation Forecast Summary**

	2000	2005	2010	2015	2020
Annual Operations					
Itinerant Operations	300	475	630	825	1,175
Local Operations	<u>1,500</u>	<u>2,000</u>	<u>2,370</u>	<u>2,775</u>	<u>3,500</u>
Total Annual Operations	1,800	2,475	3,000	3,600	4,675
Based Aircraft	6	9	11	13	17